

CLAIMS

1. A pulsed detonation engine supplied cyclically with a combustible charge fed into the combustion
5 chamber (5) of a flame tube (2) with a transverse base (3) by a supply device (6), characterized:
- in that said transverse base (3) of the flame tube (2) is mounted so that it can move with respect to the latter in order to be able to occupy two
10 boundary positions, a first position corresponding to the detonation phase of the combustible charge in the combustion chamber (5) of said tube and a second position corresponding to the phase wherein the combustible charge is supplied to said
15 chamber;
 - in that at least one supply opening (7) for said combustible charge is provided in the lateral wall (4) of said tube, this opening being closed off and separated from said combustion chamber (5) by
20 said movable base (3) when the latter is occupying its first position and being in fluid communication with said chamber (5) when said movable base (3) is occupying its second position; and
 - 25 - in that, in said first position, said transverse movable base (3) is secured to said tube (2) by releasable locking means (9; 42, 43).
2. The engine as claimed in claim 1, characterized in
30 that said transverse movable base (3) slides with respect to said tube (2) between the first and second positions.
3. The engine as claimed in either of claims 1 and 2,
35 characterized in that said transverse movable base (3) rotates with respect to said tube (2) between the first and second positions.

4. The engine as claimed in claims 1 and 2, characterized in that said transverse movable base (3) takes the form of a piston (10) with a transverse wall (11) facing said chamber and with a lateral skirt (12) cooperating with the wall (4) of said tube in order to close off said supply opening (7) in the first position of said base, and in that said releasable locking means (9) comprise an internal block (14) housed in said piston (10) in a sliding manner and passing through its transverse wall (11) so as to emerge in said combustion chamber (5), and also at least one locking roller (17) subjected to the movement of said block and being able to pass radially through the lateral skirt (12) of said piston in order to engage in a reception housing (20) of said tube and to immobilize said base.

5. The engine as claimed in claims 1, 2 and 3, characterized in that said transverse movable base (3) is mounted rotationally on a piston (40) arranged in said flame tube (2) and is provided with peripheral locking tenons (42) which are able to cooperate, in said first position, with locking housings (43) which are made in said flame tube and are in communication with said combustion chamber (5), and in that, through the effect of a detonation, said transverse movable base (3) rotates with respect to said piston (40), inhibiting the cooperation of the locking tenons (42) and the locking housings (43) and enabling said piston (40) to assume said second position.

6. The engine as claimed in any one of claims 1 to 5, characterized in that an internal stop (8) is provided in said tube (2) in order to mark the first position of said movable base.

7. The engine as claimed in claim 6, characterized in that said internal stop takes the form of an internal annular shoulder (8) emanating from the lateral wall

(4) of said tube (2) and against which the piston of said movable base (3) is applied in its first position.

8. The engine as claimed in any one of claims 1 to 7,
5 characterized in that elastic return means (21) are provided in said tube (2) in order to return said movable base (3) from its second position toward its first position.

10 9. The engine as claimed in claim 8, characterized in that said elastic return means (21) comprise at least one spring (22) acting on the block of said movable body (3).

15 10. The engine as claimed in claim 6, characterized in that said lateral supply opening (7) is disposed adjacently to said internal stop (8).

20 11. The engine as claimed in any one of claims 1 to 10, of the type comprising an ignition device, characterized in that said ignition device (30) comprises means (31, 32, 33, 34) for using the reciprocating movement of said transverse movable base (3) and cyclically igniting the combustible charge.

25 12. The engine as claimed in claim 11, characterized in that said ignition device (30) is of the piezoelectric type and comprises a movable weight (31) connected to said transverse movable base, a retaining
30 device (32) which is able to maintain said weight in the primed position, an elastic element (33) for returning said weight to the percussion position subsequent to the release of said retaining device, and a piezoelectric member (34) generating an electrical
35 current in order to ignite said combustible charge when said weight comes into the percussion position.